DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	BELLAMY RESERVOIR	Lake Area (ha):	154.68
Town:	MADBURY	Maximum depth (m):	9.1
County:	Strafford	Mean depth (m):	2.9
River Basin:	Coastal	Volume (m^3):	4484000
Latitude:	43°11'42" N	Relative depth:	0.7
Longitude:	70°57'06" W	Shore configuration:	4.68
Elevation (ft):	140	Areal water load (m/yr):	18.63
Shore length (m):	20600	Flushing rate (yr^{-1}):	6.40
Watershed area (ha):	5964.1	P retention coeff.:	0.48
% watershed ponded:	3.1	Lake type:	artificial

BIOLOGICAL:		1 March 2000	19 August 1999
DOM. PHYTOPLANKTON (% TOTAL)	#1	DINOBRYON 60%	DINOBRYON 50%
	#2	CHLAMYDOMONAS 12%	CHRYSOSPHAERELLA 35%
	#3	UROGLENOPSIS 10%	ASTERIONELLA 9%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			6.42
DOM. ZOOPLANKTON (% TOTAL)	#1	NAUPLIUS LARVA 50%	KERATELLA 21%
	#2	KERATELLA 36%	NAUPLIUS LARVA 21%
	#3		KELLICOTTIA 16%
ROTIFERS/LITER		5	93
MICROCRUSTACEA/LITER		9	48
ZOOPLANKTON ABUNDANCE (#/L)		14	152
VASCULAR PLANT ABUNDANCE			
SECCHI DISK TRANSPARENCY (m)			2.8
BOTTOM DISSOLVED OXYGEN (mg/L)		3.1	0.2
BACTERIA (E. coli, #/100 ml)	#1		
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m)	:	5.3
Hypolimnion volume (m^3)	:	160300
Anoxic volume (m^3)	:	964800

CHEMICAL:

Lake: BELLAMY RESERVOIR
Town: MADBURY

	1 March 2000		19 August 1999		
DEPTH (m)	2.0	4.0	2.0		4.0
pH (units)	5.7	5.7	6.5		6.3
A.N.C. (Alkalinity)	1.9	5.1	5.4		5.2
NITRATE NITROGEN	0.17	0.13	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	< 0.10	0.10	< 0.10		0.20
TOTAL PHOSPHORUS	0.009	0.015	0.014		0.015
CONDUCTIVITY (µmhos/cm)	78.7	103.4	95.7		95.3
APPARENT COLOR (cpu)	55	70	70		70
MAGNESIUM			1.07		
CALCIUM			3.5		
SODIUM			13.3		
POTASSIUM			0.71		
CHLORIDE	17	24	23		24
SULFATE	5	5	2		2
TN : TP		15			13
CALCITE SATURATION INDEX			3.5		

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1999

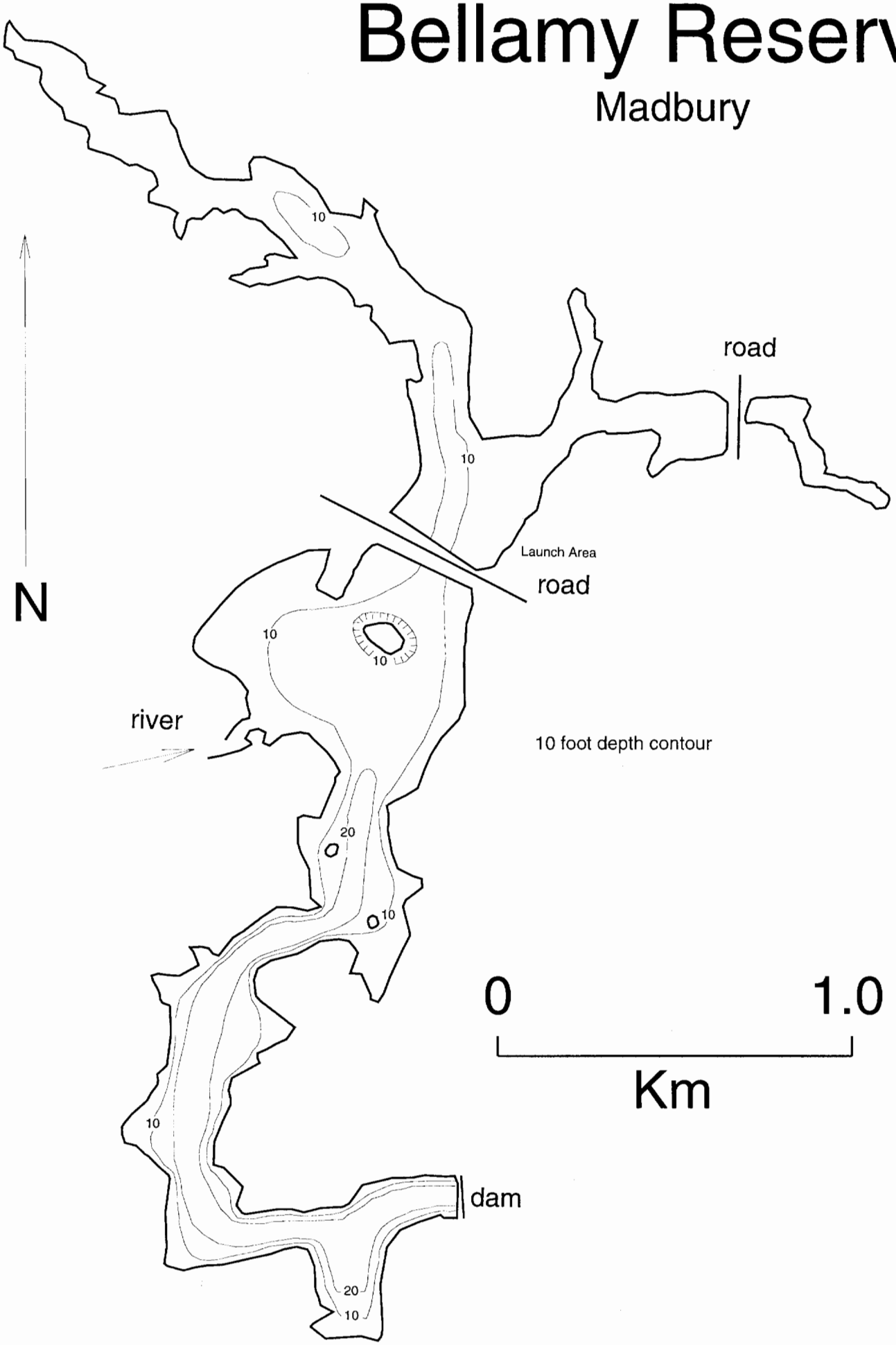
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
4	3	6	1	14	Eutro.

COMMENTS:

1. This is the public water supply reservoir for the City of Portsmouth. Fishing and non-motorized boats are allowed but no swimming.
2. Bellamy Reservoir was previously surveyed in 1979 and was also classified eutrophic at that time.
3. A rooted plant survey was not conducted in 1999 but visual observation confirmed that plants were still very abundant and this rating was used for trophic classification purposes.
4. This is a tea-colored, artificial impoundment of the Bellamy River and Mallego Brook supporting abundant rooted plant growth.

Bellamy Reservoir

Madbury



FIELD DATA SHEET

LAKE: BELLAMY RESERVOIR TOWN: MADBURY
DATE: 08/19/1999 WEATHER: Sunny, Warm

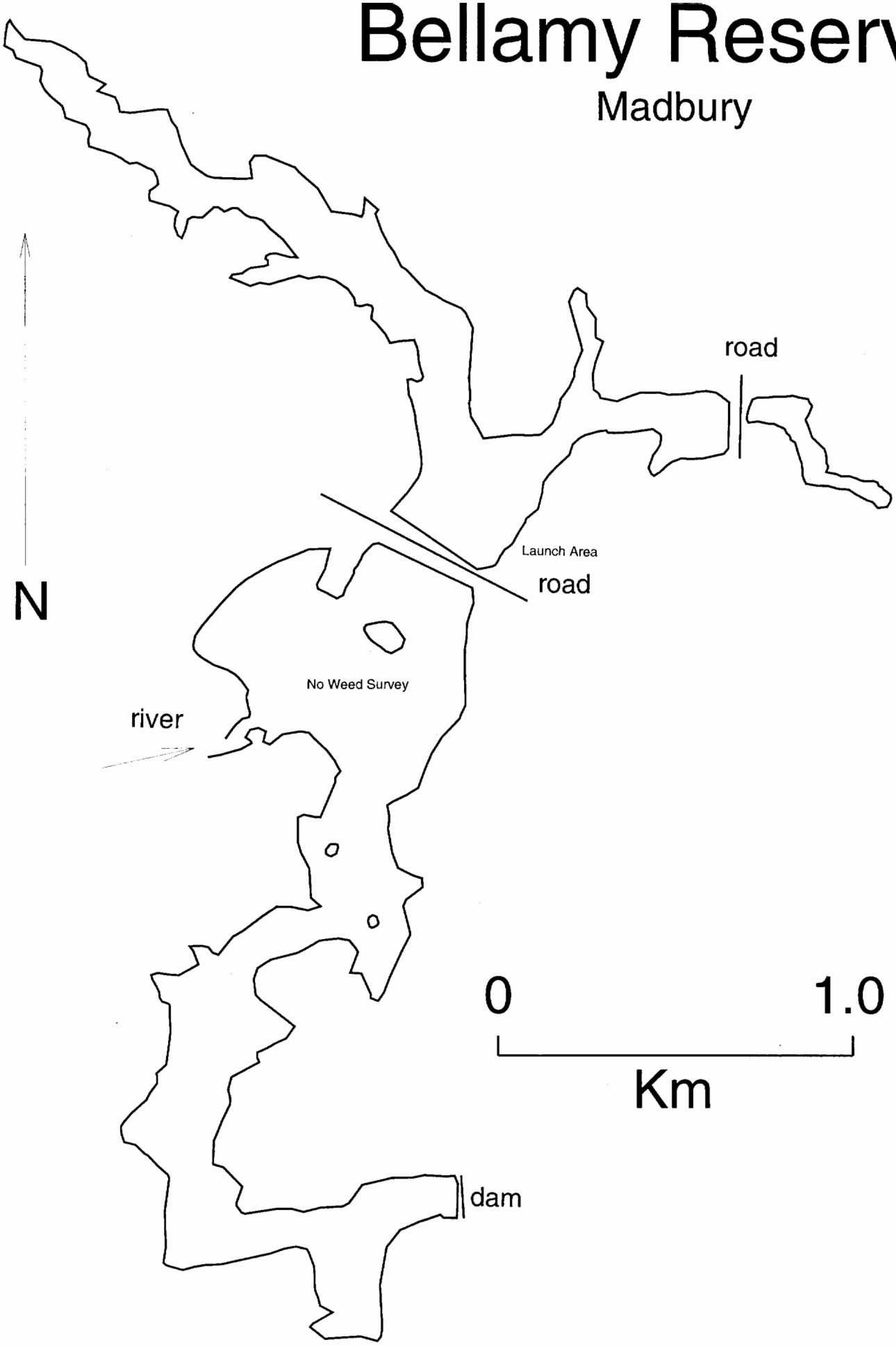
	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	24.8	7.3	88 %
	1.0	24.8	7.2	87 %
	2.0	24.8	7.2	87 %
	3.0	23.2	5.3	62 %
	4.0	21.8	3.2	36 %
	5.0	17.6	0.2	2 %
	6.0	12.5	0.2	2 %
	6.5	11.8	0.2	2 %

SECCHI DISK (m): 2.8 COMMENTS:
BOTTOM DEPTH (m): 6.9
TIME: 1043

*Dissolved oxygen values are in mg/L

Bellamy Reservoir

Madbury



AQUATIC PLANT SURVEY

LAKE: BELLAMY RESERVOIR TOWN: MADBURY DATE: 08/19/1999

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	

OVERALL ABUNDANCE:

GENERAL OBSERVATIONS:

1. No plant survey was conducted at the time of the summer survey because of lack of time. The reservoir was re-visited in the fall to conduct a plant survey but water levels were high, flooding areas not normally flooded. Many plants were also dying at this time.

2. Visual observations during the summer indicated that plant growth was similar to the 1979 survey where overall plant abundance was very abundant, and was dominated by pickerelweed, bur reed, bulrush and bladderwort. Cattails were also very common.